METHOD AND SYSTEM FOR SELECTIVELY COUPLING A CONDUCTIVE MATERIAL TO A SURFACE OF A SEMICONDUCTOR DEVICE

ABSTRACT OF THE DISCLOSURE

A method for selectively coupling a conductive material (60) to a contact region (32) of a semiconductor device (8) includes bombarding residual material (40) coupled to the contact region (32) with inert ions (44) at a first position associated with an integrated cluster tool (90) to increase the reactive surface area of the residual material (40). Hydrogen ions (46) are introduced at the first position for reaction with the residual material (40) to remove the residual material (40) from the contact region (32). The semiconductor device (8) is transferred in situ from the first position to a second position associated with the integrated cluster tool (90). The conductive material (60) is selectively coupled to the contact region (32) at the second position using chemical vapor deposition.